BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re:	)
	)
South Essex Sewerage District	)
	)
Permit No. MA0100501	)
	)

PETITION FOR REVIEW OF
SOUTH ESSEX SEWERAGE DISTRICT'S
NPDES PERMIT ISSUED BY REGION 1

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I. INTRODUCTION

The South Essex Sewerage District ("District") operates a regional wastewater treatment facility ("Facility") that serves about 188,500 ratepayers across southern Essex County, Massachusetts. The District is home to some of the poorest ratepayers in the state. The Facility discharges into the Atlantic Ocean within Salem Sound, a coastal embayment that is part of Massachusetts Bay, under a National Pollution Discharge Elimination System ("NPDES") permit. Region 1 of the Environmental Protection Agency ("EPA" or "Region") has issued a final permit for the District that imposes multiple requirements that exceed its statutory authority and are unreasonable.

The District requests that the Environmental Appeals Board ("Board") accept this petition for review of the final permit for at least the following reasons:

First, the imposition of a "special condition" water quality assessment that requires extensive testing and recommendations for waters unaffected by the District's discharge exceeds the scope of EPA's authority under the Clean Water Act. Imposing the requirement on the District is also irrational because the District contributes only a small percentage of the overall nutrient load into Massachusetts Bay, and EPA's own evidence shows that the potential impacts on eelgrass (identified by EPA as the basis of the study) are caused by sources *other* than the District. The program also calls for the District to recommend remedial measures, even though the water quality at the proposed sampling point is unrelated to the District's discharge. EPA may not impose such an onerous program—estimated to cost $150,000 to $200,000 per year with no end date—on a permittee that does not contribute to the underlying concern.

Second, the Region's decision to maintain year-round bacteria limits for fecal coliform and enterococci is irrational because it requires unnecessary chlorine disinfection purportedly to

protect recreational uses, even though such uses do not occur in the winter months. The Region regularly omits winter limits in permits for other facilities, and the Region does not adequately justify why it insists on stringent year-round limits for the District, particularly for an open-ocean outfall. Indeed, as to the fecal coliform limit, the Region did not provide any reason at all.

Third, these bacteria limits are also irrational because the Region did not allow a mixing zone in setting them. The Region uses mixing zones for other analytes in the permit, as well as in setting bacteria and other limits for other facilities' permits (such as the MWRA).[1] Also, the primary reason to decline a mixing zone—to protect the health of "people recreating in or through a bacteria mixing zone" or from eating affected shellfish—does not apply. The record data and other factors at the open-ocean outfall show that a mixing zone will not harm public health or the environment.

Fourth, the per- and polyfluoroalkyl substances ("PFAS") and organofluorine[2] analyte monitoring requirements for the Facility's influent, effluent, and sludge (only for PFAS) are clear error. The Region may not require the District to adopt testing methods for these compounds (Method 1633 for PFAS and Method 1621 for organofluorines) that have not been officially adopted and promulgated into federal regulations.

Fifth, the increased frequency of nitrogen monitoring is unnecessary. The District's monthly sampling over the last ten years has shown no significant changes in nitrogen levels, including during the growing season (Apr. – Oct.). Thus, there is no reason to increase the frequency to weekly during the growing season and burden the District and its ratepayers with the ensuing costs. The existing sampling requirement adequately represents the District's

[1] "MWRA" stands for the Massachusetts Water Resources Authority, the largest water and sewerage authority in the Commonwealth.

[2] Organofluorines are molecules with a carbon-fluorine bond. (*See* Att. 7, Fact Sheet at 40.)

nitrogen discharges into the Atlantic Ocean. Weekly testing, as required by the final permit, provides no benefit. Only unnecessary costs.

For these reasons and those discussed below, the District requests that the Board remand the final permit to Region 1 with instructions to issue a new permit that: (1) removes the special condition ambient water quality monitoring and assessment; (2) removes the bacteria limit in the winter (Nov. – Mar.); (3) recalculates the effluent bacteria limits to reflect a mixing zone at the Facility's outfall; (4) removes the requirement for monitoring PFAS and organofluorine analytes, or, in the alternative, stays this requirement until a testing method is adopted and promulgated into federal regulations; and (5) maintains monthly nitrogen sampling frequency of the discharge year-round, consistent with the prior permit.

II. PERMIT CONDITIONS FOR REVIEW

Under 40 C.F.R. § 124.19(a), the District petitions for review of the conditions of Permit No. MA0100501 ("Final Permit"), which was issued on December 22, 2025 by Region 1. The Final Permit authorizes the District to discharge from its wastewater treatment plant at 50 Fort Avenue, Salem, MA 01970 into Salem Sound in the Atlantic Ocean. (Att. 1, Final Permit.) The District contends that certain permit conditions are based on clearly erroneous findings of fact and conclusions of law.

Any contested permit conditions and any uncontested conditions that are not severable from contested conditions are stayed pending final agency action. 40 C.F.R. §§ 124.16(a)(2)(i), 124.60(b). Specifically, the following provisions are stayed: (i) the special condition ambient water quality assessment, (ii) the effluent bacteria limits for enterococci and fecal coliform, (iii) the monitoring requirements for PFAS and organofluorines, and (iv) the weekly nitrogen testing requirements in the growing season.

III. FACTUAL AND STATUTORY BACKGROUND

The District submits the following relevant factual, statutory, and regulatory background to assist the Board's review:

A. Factual Background

i. *The District Facility History*

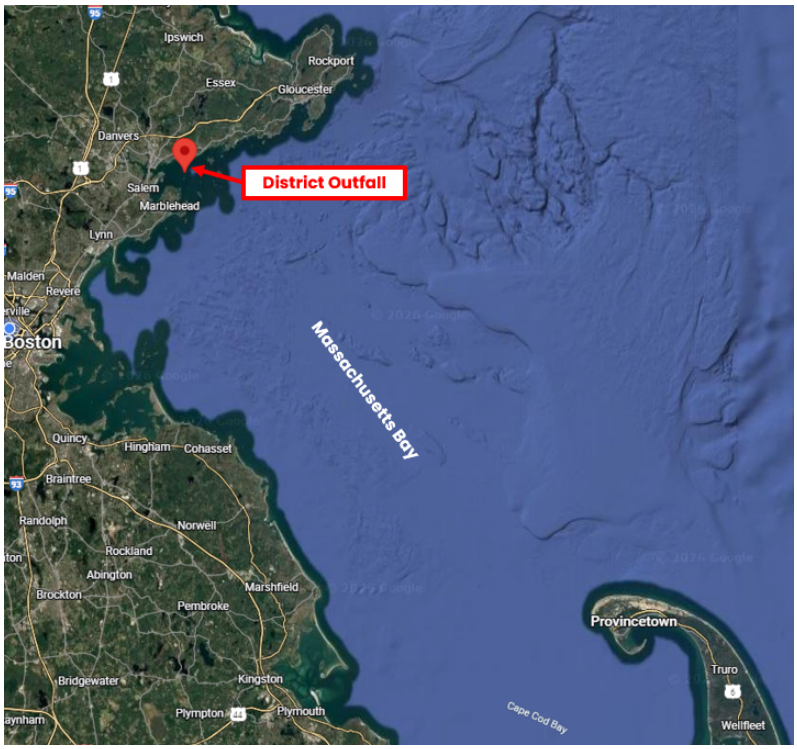
The South Essex Sewerage District was formed in 1925 by the Massachusetts legislature to address sewerage collection and disposal problems facing the region. Today, the District upholds this charter by serving about 188,500 ratepayers from the Cities of Beverly, Peabody, and Salem, the Towns of Danvers and Marblehead, and portions of the Towns of Middleton and Wenham. The District is home to some of the poorest ratepayers in the state.[3]

The District operates a sewage collection system across these communities and, since the 1970s, a wastewater treatment plant in Salem that consists of both primary and secondary treatment facilities. The Facility discharges treated effluent into the Atlantic Ocean at Salem Sound, which is part of Massachusetts Bay. Massachusetts Bay extends for over 40 miles, from Cape Ann in the north to Plymouth Harbor in the South.[4]

[3] Data is obtained from *MassGIS Data: 2020 Environmental Justice Populations,* https://www.mass.gov/info-details/massgis-data-2020-environmental-justice-populations. The data identifies low income blocks in Salem, Beverly, Peabody, Marblehead, and Danvers.

[4] *Massachusetts Bay and Boston Harbor*, https://www.nps.gov/boha/learn/nature/ma-bay-and-boston-harbor.htm

Figure 1:
Massachusetts Bay and Outfall Location



To pay its expenses, the District assesses and bills its member cities and towns directly (rather than billing individual ratepayers, as other wastewater districts commonly do). The District must comply with Proposition 2 1/2, a state law that prohibits increasing charges to its member communities by more than 2.5 percent than the prior year without approval from two-thirds of its board and two-thirds of the appropriating authorities of its member communities. M.G.L. c. 59, § 20B. This in turn limits the amount of revenue that the District can raise for increased costs, including those imposed by the Final Permit.

ii. *The District Permitting History*

The District has long operated the Facility pursuant to a NPDES permit issued by EPA. The District's 2001 NPDES permit initially required the District to administer an ambient monitoring program in Salem Sound. (*See* Att. 2, 2001 NPDES Permit for the District at 9.) The

monitoring program required sampling three times every other year from six different locations, the furthest of which were 500 meters away from the effluent outfall location. (*Id.*) The District appealed this provision, and the Region ultimately withdrew it. (Att. 4, 2001 NPDES Permit Appeal Withdrawal Letter).[5] As part of the notice-and-comment process for the 2001 permit, Salem Sound 2000 requested that EPA amend the ambient monitoring program to include "water column monitoring for chlorophyll a, phytoplankton, dissolved oxygen, turbidity, toxics and nutrients" as well as "bulk sediment chemistry for toxic parameters including metals." (Att. 3, 2001 NPDES Permit Comments and Response to Comments at 5). The Region declined to add these parameters to the final 2001 permit. (*Id.* at 6). The Region explained that "EPA's authority to require ambient monitoring is limited to circumstances where there are documented water quality impacts which are caused by a particular discharge." (*Id.*)(underlining added). Because "[w]ater quality data collected in the vicinity of the discharge in 1997, prior to the completion of secondary treatment, did not indicate any significant water quality impacts," the Region correctly concluded that it was not authorized to impose Salem Sound 2000's requested parameters. (*Id.*)

Region 1 issued the next permit for the District in 2016, that was immediately prior to the Final Permit and that superseded the 2001 permit. (*See* Att. 5, 2016 NPDES Permit for the District.) The 2016 permit did not include any monitoring requirements for ambient water quality in the receiving waters. (*See id.*) As for effluent monitoring and limits, the 2016 permit set average monthly limits for fecal coliform bacteria and enterococci at 88 cfu/100mL and 35

[5] The Board may consider this information because it is "'background information . . . to determine whether the agency considered all of the relevant factors'" in its decision. *Safe Haven Home Care, Inc.*, 130 F.4th 305, 324 (2d Cir. 2025) (quoting *Am. Wildlands v. Kemphthorne*, 530 F.3d 991, 1002 (D.C. Cir. 2008)).

cfu/100mL, respectively. (*See id.* at 2.) The 2016 permit also required that "no more than 10 percent of the fecal coliform samples in any calendar month shall exceed [260cfu/100mL]," and set a daily maximum limit for enterococci at 276 cfu/100mL. (*See id.* at 2, 3.) No PFAS or organofluorine monitoring was required under the 2016 permit. The 2016 permit required monthly testing and reporting year-round for total kjeldahl nitrogen ("TKN") and nitrate/nitrite in the Facility's effluent. (*See id.* at 2.)

The 2016 permit was subject to a minor revision in 2017 to add mysid shrimp to the list of test species to be analyzed for the required whole effluent toxicity ("WET") tests. (*See* Att. 6, 2017 Minor Revision to the District's NPDES Permit.)

iii. *2025 Draft Permit*

The District timely filed an application to renew its NPDES permit on January 27, 2021. (*See* Att. 7, Draft Permit, Fact Sheet at 5.) The Region published a draft permit in 2025 ("Draft Permit") to supersede the 2016 permit (as revised in 2017). (*See* Att. 7.) As applicable here, the Draft Permit contained the following conditions:

Special Condition Water Quality Assessment: The Draft Permit contains two so-called ambient monitoring requirements. One is a quarterly sampling requirement for several parameters to analyze ambient conditions. (*See id.* at 4, Sec. I.A.1.) Those samples are to be "taken from the receiving water at a point immediately outside of the permitted discharge's zone of influence at a reasonably accessible location. . . ." (*Id.* at 8, n. 15.)

The second is an extensive "special condition" water quality assessment at a location in Salem Sound and adjacent to Massachusetts Bay, roughly 2 miles away from the outfall. (*Id.* at 21.) Under this program, the Draft Permit required the District to sample nine times per year from early February through late October for monitoring of four categories of analytes (hydro profile, water chemistry, phytoplankton, and zooplankton) and a host of parameters at various

depths. (*Id.* at 21–22.) By November 15 of each year, the Draft Permit required the District to prepare and submit a report to EPA and MassDEP on the data collected under this water quality monitoring program. (*Id.* at 23–24.) EPA explained that the location for testing was "outside the immediate influence of [the Facility's] discharge" and chosen because it was a location from an earlier study conducted by the Commonwealth of Massachusetts (the Vella and Callaghan study, 2020). (*See* Att. 7, Fact Sheet at 47.) Notably, the 2020 Vella and Callaghan study was unrelated to the District's discharge. (*See id.* at 35.) The Draft Permit's required monitoring program thus demanded more extensive testing, more frequently, and further from the Facility and the outfall than any previous NPDES permit had required the District to perform.

According to the MWRA in its comments, the special condition program "is functionally identical to MWRA's program, down to the parameters to be sampled and the sampling schedule." (*See* Att. 9, Response to Comments at 65.) The major differences are (1) MWRA's program was justified because MWRA's "outfall [which is about 14-15 times larger than the District's] was new" and "there were legitimate questions about the ecological impact of the outfall"; and (2) the proposed program in the Draft Permit lacks "monitoring questions to guide the design of the monitoring program." (*Id.*)

Overall, the Fact Sheet emphasized the overall health of Massachusetts Bay in justifying this study, with a particular emphasis on the effects of nutrients on eelgrass beds. (*See* Att. 7, Fact Sheet at 43–44.)[6] But EPA also simultaneously noted that the District contributed only 5.8% of the permitted wastewater discharges directly into the bay. (*Id.* at 45.) The largest direct

[6] Specific to Salem Sound, the Fact Sheet cited a 2017 study from the Mass. Division of Marine Fisheries that "found extremely resilient yet highly vulnerable stands of eelgrass as well as some of the most robust and healthy eelgrass beds in Massachusetts." (*See* Att. 7, Fact Sheet at 44; *Historic Eelgrass Trends in Salem Sound, Massachusetts*, https://www.mass.gov/files/2017-08/2016_Salem%20Sound%20Eelgrass.pdf.)

contributor is the MWRA's Deer Island Wastewater Treatment Plant ("Deer Island Facility"), contributing 436 MGD of permitted flow—about 85.7% of the total. (*Id.*)[7] These percentages do not include indirect contributors of nutrients and other analytes that might affect water quality, such as septic systems and facilities that discharge to other waterbodies connected to the Bay. In reality, 5.8% significantly overstates the District's proportionate contribution of nutrients to Massachusetts Bay. EPA nevertheless imposed the costs of the program on the District's ratepayers. (*Id.* at 46–47).

Bacteria Limits: The Draft Permit included a fecal coliform limit of 88 cfu/100mL by monthly average, with a maximum daily limit of 260 cfu/100mL, and a monitoring requirement of two grab samples per day. (*See* Att. 7 at 3.) The Fact Sheet justified this because the 2016 permit had the same limits, except that instead of a daily limit, the 2016 permit required that "no more than 10 percent of the fecal coliform samples in any calendar month shall exceed [260 cfu/100mL]." (*See* Att. 7, Fact Sheet at 30; Att. 5 at 3.) The Draft Permit also incorrectly alleged that there were "six exceedances of the maximum daily limit" from the 2016 permit during the review period. (*See* Att. 7, Fact Sheet at 30.) In addition to the fecal coliform limit, the Draft Permit set an average monthly limit for enterococci of 35 cfu/100mL and a maximum daily limit of 276 cfu/100mL. (*See* Att. 7 at 3.) Both the fecal coliform limit and the enterococci limit were set as year-round limits, with no seasonal allowances. (*Id.*)

PFAS and Organofluorine Monitoring Requirement: The Draft Permit proposed quarterly testing and reporting of PFAS in effluent, influent, and sludge and for organofluorine analytes in

[7] According to the Fact Sheet, 11 wastewater facilities are permitted to discharge a total of 509 MGD into Massachusetts Bay and Cape Cod Bay, which are part of the same bay system. (*See* Att. 7, Fact Sheet at 45.) The Facility is permitted to discharge 29.7 MGD, or 5.8% of the total. (*Id.*)

effluent and influent. (*See* Att. 7 at 3–4.) In the Draft Permit footnotes, the Region explained that the District must use Method 1633 for the PFAS testing and Method 1621 for organofluorine.[8] (*Id.* at 7.) The Fact Sheet acknowledged that "Massachusetts water quality standards do not include numeric criteria for PFAS" and organofluorine but nonetheless required monitoring. (*See* Att. 7, Fact Sheet at 39.) The underlying justification for PFAS monitoring provided in the Fact Sheet was "to better understand potential discharges of PFAS from [the Facility] and to inform future permitting decisions." (*Id.*) As for the organofluorine monitoring requirement, the Fact Sheet stated that organofluorine molecules "are rarely naturally occurring and the most common source of organofluorines are PFAS and non-PFAS fluorinated compounds such as pesticides and pharmaceuticals." (*Id.* at 40.) Thus, EPA required screening for organofluorines "to screen for a broader range of these types of emerging contaminants." (*Id.*) The Draft Permit elaborated further on the requirement to use Method 1633 for PFAS testing by noting that a finalized federal regulatory method for measuring PFAS was not yet available, and that Method 1633 provided the best available option for methodology as of the time of permitting. (*Id.*) EPA also noted that there was no analytical method approved in federal regulations for organofluorines. But it still required use of Method 1621, which EPA only recently published as a draft rule, anyway. (*See* Att. 7 at 7–8, Fact Sheet at 40.)

Nitrogen Monitoring: The Draft Permit increased the frequency of sampling and reporting nitrogen (TKN and nitrate/nitrite) compared to prior permits. (*See* Att. 7 at 3.) From April 1 to October 31, the draft permit required this monitoring to be weekly, and to be monthly

[8] Method 1633 and a slightly revised 1633A are methods published by EPA's Office of Water to test for 40 PFAS compounds in wastewater, among other things. Method 1621 measures the aggregate concentration of organofluorines in wastewater. *See CWA Analytical Methods for Per- and Polyfluorinated Alkyl Substances (PFAS)*, https://www.epa.gov/cwa-methods/cwa-analytical-methods-and-polyfluorinated-alkyl-substances-pfas.

for the rest of the year. (*Id.*) The prior permit imposed monthly sampling year-round. (*See* Att. 5 at 2).

iv. *Comments Submitted by the District*

The District submitted comments to the Draft Permit, challenging several provisions.[9] (*See* Att. 8, The District's Comment Letter.) As detailed below, the District commented on all issues raised in this Petition.

Special Condition Water Quality Assessment: The District requested that the special condition water quality monitoring requirement be removed from the final permit. (*See* Att. 8 at 25.) The District noted that it was unlikely to be the cause of any perceived eelgrass impacts. (*Id.* at 23.) The Draft Permit declined to establish an effluent limit for nitrogen from the Facility because, according to a 2020 study, high nitrogen content had not been detected near the Facility's outfall. (*Id.*) The District explained that "[t]his strongly indicates that the aquatic life impairment is unlikely to be caused by [the Facility's] discharge," and that other sources are likely the real cause. (*Id.*) The Facility contributes only 5.8% of the direct wastewater flow into Massachusetts Bay (not including indirect discharges or other nutrient sources), and the Fact Sheet even admitted that "it is not clear that [the Facility's] discharge is causing or contributing to" nutrient-induced effects in Salem Sound. (*Id.*; Att. 7, Fact Sheet at 36.) The District further explained that EPA had admitted in the Fact Sheet that the testing site it chose for the monitoring

[9] The District's comments also challenged the following draft permit requirements: sampling frequency for nitrogen species; adoption of an adaptation plan; additional planning for high flows; alternate power sources; PFAS testing for industrial discharge; industrial user notices; local limits; outfall best management practices; notification of Massachusetts Division of Marine Fisheries; model or dye study; aspects of the Section 401 water quality certification from MassDEP; and the potential alternative permit conditions. (*See* Att. 8.)

requirement was about two miles away and "outside the immediate influence of [the Facility's] discharge." (Att. 8 at 23; Att. 7, Fact Sheet at 47.)

The District asserted that the special condition assessment was an overreach of EPA's authority, effectively requiring the District to perform an environmental research project to monitor conditions that EPA did not assert that the District had caused. (Att. 8 at 24–25.) The Clean Water Act, the District noted, is focused on the regulation of point source discharges into navigable waters. (*Id.* at 24.) Thus, "EPA's authority under the [Clean Water Act] does not explicitly extend to mandating ambient water quality monitoring outside the zone of influence of a [wastewater treatment facility's] discharge." (*Id.*)

The District also noted the extensive costs associated with the program, which would be inordinately high due to the "limited number of companies with an appropriate [large] vessel, captain, equipment, and expertise that are capable of completing" the ambient monitoring requirement. (*Id.* at 21.) Altogether, such monitoring could cost the District about $150,000–$200,000 per year, a high sum for the District to pay for an environmental study well outside of its Facility's zone of influence. (*Id.* at 25.)

Bacteria Seasonal Limits and Mixing Zones: The District also requested that the effluent bacteria testing limits be re-evaluated in several respects. (*See* Att. 8 at 7.) As relevant here, the District requested that the winter limits be removed, and that a mixing zone be recognized and implemented into the calculations for acceptable bacteria concentrations. (*Id.*)

Seasonal Limit. The District requested that the fecal coliform and enterococci limits only apply during the months of April through October, rather than year-round as the Draft Permit provided. (*Id.*) The District noted that the primary reason for imposing bacteria limits is to protect public health, which is not a concern during the winter when recreational use of Salem

Sound and its shoreline drops. (*Id.* at 5–6.) EPA has no winter bacteria limit for other permittees, including the MWRA. (*Id.* at 6.) Adopting a seasonally-appropriate limit would reduce the amount of chlorine used by the District when it was not needed, which would be in line with the EPA's stated goal in the Draft Permit that the District "shall minimize the use of chlorine while maintaining adequate bacteria control." (*Id.* at 6; Att. 7 at 7.) The District budgets almost $1.3 million dollars each year for disinfection chemicals. A reduction in these costs from seasonal limits would provide additional funds under Proposition 2 ½ for critical ongoing plant upgrades and repairs.

Mixing Zone. The District also requested that the final permit recognize a mixing zone in its bacteria limits. (*See* Att. 8 at 7.) A mixing zone is an area where the effluent and receiving water meet, and where higher concentrations of pollutants may temporarily exist before being more thoroughly diluted in the receiving water (thus ultimately not causing pollution concerns). (*See* Att. 7, Fact Sheet at 25). Mixing zones are allowed under the Massachusetts water quality regulations. 314 C.M.R. § 4.03(2). (*See* Att. 7, Fact Sheet at 25.) The District noted that the technical abilities of the Facility's effluent diffuser system, combined with the fact that the 2016 permit had used a mixing zone for calculating other limits (such as total residual chlorine), justified the imposition of a mixing zone in its NPDES permit. (*See* Att. 8 at 4.) The District noted that the MWRA's Deer Island Facility was permitted for bacteria limits with a much higher dilution factor than that used for the District in recognition of Deer Island's effluent diffusion technical capabilities. The Facility has the same capabilities. (*Id.*) If a mixing zone were implemented in the District's permit calculations, the average daily limit for fecal coliform

and enterococci should be increased to 1,637 cfu/100mL and 651 cfu/100mL, respectively, and average daily limits should be increased correspondingly.[10] (*Id.* at 5.)

PFAS and Organofluorine Monitoring Requirement: The District also requested that the PFAS and organofluorine monitoring requirements for effluent, influent, and sludge (PFAS only) be removed. (*See* Att. 8 at 10, 11.) As to PFAS, The District noted the "significant cost burden on the District and its ratepayers" that this testing would impose. (*Id.* at 9 (estimating that "[e]ach sample analyzed for PFAS costs $350," and that additional testing costs for quality control would only amplify these costs).) This cost burden was unjustified and duplicative, the District explained, because MassDEP had already "initiated a statewide study and will be collecting this information from facilities throughout the state," anyways. (*Id.*) MassDEP was better suited to undertake this testing, and was already doing it anyways, so there was no need for the District to do so, too. (*Id.*) The District also challenged the Draft Permit's requirement to use Method 1633 because it had not been promulgated or published, and thus could still be subject to change and review. (*Id.* at 9–10.)[11] Thus, the District asserted, PFAS monitoring should not be required prematurely before an official testing method had been adopted. (*Id.*) Finally, the District requested that if the PFAS monitoring requirement were left in the permit, that sampling be limited to twice annually for the initial two years and that the requirement be

[10] For fecal coliform, according to the mixing zone recalculation, no more than 4,836 cfu/100mL should be present in a maximum of 10% of the samples. (*See* Att. 8 at 7.) For enterococci, the maximum daily limit should be 5,134 cfu/100mL. (*Id.*)

[11] *See CWA Analytical Methods for Per- and Polyfluorinated Alkyl Substances (PFAS)*, https://www.epa.gov/cwa-methods/cwa-analytical-methods-and-polyfluorinated-alkyl-substances-pfas (stating that Method 1633A (an updated version of Method 1633, "is not nationally required for CWA compliance monitoring until the EPA has promulgated it through rulemaking.").

removed entirely after five years, because by then EPA would have enough data to make future permitting decisions on PFAS. (*Id.* at 10.)

As for organofluorines, the District also raised issue with the costs for such testing and noted that organofluorines are not a regulated water pollutant and have not been definitively associated with any established water quality regulation violations. (*Id.* at 11.) Absent such data, the District explained, "EPA should do its own research on the effectiveness of [organofluorines] as a surrogate parameter for PFAS" rather than pass the costs on to the District. (*Id.*) And similar to Method 1633 which EPA required for PFAS testing, the District noted that Method 1621 for organofluorine testing has also not been promulgated into federal regulation. (*Id.* at 10.)[12] The District argued that requiring it to use an unpromulgated test method is regulatory overreach and may cause practical issues because the test method may still be subject to change. (*Id.*)

Nitrogen Monitoring Frequency: The District requested that the increased weekly nitrogen sampling frequency from April – October revert to monthly as it had been in the prior permit. (*See* Att. 8 at 9.) The District noted that the amount of data collected from the lower frequency of monitoring was already sufficient to understand the nitrogen output of the Facility's effluent. (*Id.*) The need for increased monitoring was even less apparent, the District noted, when the Region stated in the Fact Sheet that "[a]lthough [Salem] Sound shows some signs of nutrient-induced effects, it is not clear that the [Facility's] discharge is causing or contributing to those effects given the dispersion of the effluent and the low levels of nitrogen found in the Sound." (*Id.* at 7; Att. 7, Fact Sheet at 36.)

[12] *See supra* n. 8 (also stating that "Method 1621 is not nationally required for CWA compliance monitoring until the EPA has promulgated it through rulemaking").

v. *The Final Permit (2025)*

EPA issued the Final Permit on December 22, 2025. (Att. 1.) EPA made the following decisions as to the issues in this Petition.

Special Condition Water Quality Assessment: The Region refused to remove the special condition water quality monitoring program in the Final Permit. (*Id.* at 21–25.) Although the Region ultimately left the program in place, the Region reduced the number of testing dates from nine to six per year (from early April to September). (*See* Att. 9 at 45–46.)

Bacteria Limits: The Final Permit slightly adjusted the bacteria limits but ultimately did not remove the winter limits or allow for mixing zones when considering the bacteria limits as the District had requested. (*See* Att. 1 at 3.)

Seasonal Limit. The Region wrote that "MassDEP determined that a seasonal limit for enterococci would be backsliding from the 2016 permit," which had not allowed for a seasonal limit. (Att. 9 at 12.) The Region's response was silent as to the fecal coliform limit but nevertheless did not remove the winter limits. (*Id.*)

Mixing Zone. The Region explained that although mixing zones are allowed under Massachusetts water quality regulations, it declined to use one here because the receiving waters are used for recreation and shellfishing. (*Id.* at 10, 11.)

PFAS and Organofluorine Monitoring Requirements: The Final Permit's PFAS and organofluorine monitoring requirements were the same as those provided in the Draft Permit. (Att. 1 at 4, 5.) In its response as to PFAS, the Region acknowledged the cost burden of the PFAS monitoring but ultimately determined that the cost imposed on the District was necessary for the benefits it would provide for the Region. (Att. 9 at 17.) The Region ultimately rejected the District's request to set expiration dates on the PFAS monitoring requirement prior to the permit's expiration. (*Id.* at 19.)

The Region made similar arguments in its organofluorines response. (*Id.* at 20–21.) The Region conceded that organofluorines are not regulated under any current water quality standards. (*Id.* at 21.) However, the Region cited "future regulatory uncertainty" to conclude that organofluorine testing is required "to ensure the discharge is fully characterized with respect to these pollutants in the next permit reissuance." (*Id.*) As for the required use of Method 1621 and Method 1633, the Region conceded that these methods had not been promulgated in federal regulations, but asserted that they could be required anyways. (*Id.* at 18.)

Nitrogen Monitoring: The Region declined to remove the weekly sampling and testing frequency for nitrogen, citing its general authority under the CWA to impose monitoring requirements. (Att. 1 at 3; Att. 9 at 15.) The Region also justified the increase because "the influence of the [Facility's] discharge is unclear and more data" was necessary. (Att. 9 at 16.)

B. The Clean Water Act and Monitoring Requirements

Congress passed the Clean Water Act ("CWA") in 1972 to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). CWA jurisdiction exists over navigable surface waters, meaning "the waters of the United States, including territorial seas." *Id*. at § 1362(7). The NPDES permitting program is authorized under 33 U.S.C. § 1342, and implemented by the regulations at 40 C.F.R. § 122, and it allows the EPA to issue permits for facilities that discharge pollutants from point sources into waters of the United States.

EPA has the authority under the CWA to require owners or operators of wastewater point sources to "(i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such

locations, at such intervals, and in such manner as [EPA] shall prescribe), and (v) provide such other information as [EPA] may reasonably require." 33 U.S.C. § 1318(a)(A) (emphasis added).

IV. STANDARD OF REVIEW

The Board may grant review of a permit decision when the petitioner shows that the decision was based on: "(A) A finding of fact or conclusion of law that is clearly erroneous, or (B) An exercise of discretion or an important policy consideration that the Environmental Appeals Board should, in its discretion, review." 40 C.F.R. § 124.19(a)(4)(A),(B); *accord In re Broward County, Florida*, 4 E.A.D. 705, 721 (EAB 1993); *In re ArcelorMittal Cleveland Inc.*, 15 E.A.D. 611, 613 (EAB 2012).

In assessing clear error, the Board examines the administrative record that serves "as the basis for the permit to determine whether the permit issuer exercised his or her 'considered judgment.'" *In re Town of Newmarket*, 16 E.A.D. 182, 186 (EAB 2013). When "the administrative record is unclear" as to the factual basis for a determination by the Region in issuing a permit condition, the Board must remand the petition. *In re Broward County, Fla.*, 4 E.A.D. at 721; *In re U.S. Dep't of Energy and Triad Nat'l Sec., L.L.C.*, 18 E.A.D. 797, 813–14 (EAB 2022) (remand is warranted if the Region's rationale is unclear and the Board cannot determine the basis for the Region's decision).

When an agency exercises discretion, it must "cogently explain why it has exercised its discretion in a given manner." *In re Town of Newmarket*, 16 E.A.D. at 187 (quoting *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 48 (1983)); *see also Ash Grove Cement Co.*, 7 E.A.D. 387, 397 (EAB 1997) ("acts of discretion must be adequately explained and justified."). The requirement that the agency must explain its decision "is satisfied when the agency's explanation is clear enough that its 'path may reasonably be

discerned.'" *Encino Motorcars, LLC v. Navarro*, 579 U.S. 211, 221 (2016) (quoting *Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc.*, 419 U.S. 281, 286 (1974)); *In re Gen. Elec. Co.*, 18 E.A.D. 575, 620–21 (EAB 2022) (confirming that the Board is guided by Supreme Court decisions such as *Encino Motorcars, LLC*).

An agency action may not be arbitrary and capricious. 5 U.S.C. § 706(2)(A); *Ohio v. U.S. E.P.A.*, 603 U.S. 279, 292 (2024). An action is arbitrary and capricious if:

> [T]he agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Motor Vehicle Mfrs. Ass'n, 463 U.S. at 43; *See also Dept. of Homeland Sec. v. Regents of Univ. of Cal.*, 140 S.Ct. 1891, 1907–15 (2020) (vacating agency rescission of program as arbitrary and capricious for failure to adequately explain basis of recission). If such deficiencies are present, "[t]he reviewing court should not attempt itself to make up for such deficiencies; [it] may not supply a reasoned basis for the agency's action that the agency itself has not given." *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43 (citation omitted); *accord Encino Motorcars, LLC*, 579 U.S. at 224. An agency's decision may also be arbitrary and capricious if it fails to "'articulate a rational connection between the facts found and the choice made.'" *In re City of Sandpoint Wastewater Treatment Plant*, 17 E.A.D. 763, 789 (EAB 2019) (quoting *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 105 (1983).

Further, under the so-called "change in position doctrine," agencies may not change their existing policies or guidance to regulated entities unless they "provide a reasoned explanation for the change, display awareness that they are changing position, and consider serious reliance

interests." *F.D.A. v. Wages and White Lion Inv., L.L.C.*, 604 U.S. 542, 568 (2025) (citations and internal quotations omitted); *In re Gen. Elec. Co.*, 18 E.A.D. at 621.

Finally, an agency's decision must also be "held unlawful and set aside if . . . not in accordance with law [and/or] in excess of statutory jurisdiction, authority, or limitations, or short of statutory right. . . ." 5 U.S.C. § 706(2)(A) and (C). "[A]gency interpretations of statutes . . . are not entitled to deference." *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 392 (2024). Rather, "[c]ourts must exercise their independent judgment in deciding whether an agency has acted within its statutory authority." *Id.* at 412.

V. THRESHOLD PROCEDURAL REQUIREMENTS

The District satisfies the threshold requirements for filing a petition for review under 40 C.F.R. § 124.19, because:

1. The District has standing to petition for review of the permit decision because it participated in the public comment period on the Draft Permit. *See* 40 C.F.R. § 124.19(a)(2);
2. The issues raised in this petition were raised during the public comment period or in a timely fashion based on new data or EPA claims made during the issuance process, and therefore were preserved for review. *See* 40 C.F.R. § 124.19(a)(2);
3. The District has filed the petition for review within 30 days after the Regional Administrator served notice of issuance of the final permit decision. *See* 40 C.F.R. § 124.19(a)(3).
4. EPA issued the Final Permit on December 22, 2025, and the deadline for filing the petition for review is January 21, 2026. *See* 40 C.F.R. § 124.20.

VI. ARGUMENT

As detailed below, the petition should be granted and the Final Permit remanded for the following reasons:

- The special condition water quality assessment should be removed from the Final Permit because (1) this requirement exceeds EPA's statutory authority under the Clean Water Act, and (2) it is arbitrary and capricious to require a permittee to impose conditions that are not rationally related to the permitted activity.
- The bacteria limits should be amended to remove the winter bacteria limits for fecal coliform and enterococci because it is irrational to set bacteria limits purportedly to protect recreational uses in the winter when those uses do not occur. The bacteria limits should also be amended to allow for a mixing zone in the underlying calculations.
- The PFAS and organofluorine monitoring requirements should be removed because EPA cannot impose sampling regimes that have not been promulgated.
- Finally, the requirement that nitrogen be tested weekly during the summer should revert to the previous permit's monthly testing requirement because it is irrational to impose the costs of such testing when it will not further EPA's stated goals.

A. The special condition water quality assessment should be removed.

i. *The special condition exceeds the scope of EPA's statutory authority under the Clean Water Act.*

EPA lacks the authority to impose this testing program under the Clean Water Act. EPA, in its response to comments and the Fact Sheet, relies on two sections of the CWA:

- 33 U.S.C. § 1318(a)(A)— "the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods

(including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require" (underlining added)

- 33 U.S.C. § 1342(a)(2)—"The Administrator shall prescribe conditions for such permits to assure compliance with the requirements of paragraph (1) of this subsection, including conditions on data and information collection, reporting, and such other requirements as he deems appropriate."[13]

The Region lacks authority to impose a water quality assessment of this kind on the District. The only reference to sampling in either provision is to *effluent* sampling. Imposing an extensive monitoring program over a mile from the discharge certainly is not effluent sampling.[14] Nor is it a condition designed "to assure compliance with the requirements" of the Clean Water Act. 33 U.S.C. § 1342(a)(2).

More fundamentally, the "special condition" is not actually an ambient monitoring program as EPA claims. Ambient monitoring assesses the impacts of a discharge by comparing discharge samples to a baseline test just outside of the discharge's zone of influence. The Final Permit has that monitoring in Part I.A.1 where it requires quarterly grab samples "at a point immediately outside the of the permitted discharge's zone of influence at a reasonably accessible location." (Att. 1 at 4, 8 n.15.) The District is not challenging this requirement.

The special condition is different. That program requires sampling for a host of analytes and parameters two miles from the discharge. The analytes include a hydro profile, water

[13] EPA's unfounded statutory interpretation is not entitled to deference. *See Loper Bright Enterprises*, 603 U.S. at 392 (holding that "agency interpretations of statutes . . . are *not* entitled to deference under the Administrative Procedures Act); 5 U.S.C. § 706. The Board thus may not defer to the Region's erroneous reading of its enabling statutes, and instead must decide this "relevant [question] of law" according to its own authority under the Administrative Procedure Act. *See* 5 U.S.C. § 706.

[14] Conversely, influent or sludge monitoring requirements are within EPA's authority because they are directly related to the point source or emitting facility.

chemistry, phytoplankton, and zooplankton. (*Id.* at 22.) The program also requires the District to "provide recommendations for . . . remedial actions to improve water quality." (*Id.* at 24.) It bears no relationship to the discharge and provides no comparative analysis to the Facility's discharge. In reality, the special condition is a water quality assessment, not ambient monitoring. Indeed, the Region acknowledges this when it states that the assessment will be used as background data for conducting future reasonable potential assessments. (Att. 9 at 44.) Water quality assessments are the state's responsibility. 33 U.S.C. § 1313 (states adopt water quality standards); 33 U.S.C. § 1315 (requiring each state to prepare a report on water quality every two years); 40 C.F.R. § 130.4(b) ("The State's water monitoring program shall include collection and analysis of physical, chemical and biological data and quality assurance and control programs to assure scientifically valid data.").

Nowhere do the statutes upon which the Region relies give it the authority to impose such an involved program.[15] And the cases the Region cites for this authority hold only that effluent monitoring requirements can be imposed, not receiving water quality assessments.[16] As noted

[15] The regulations the Region cites also do not give it this authority. (*See* Att. 9 at 15 (citing 40 C.F.R. § 122.41(h); 40 C.F.R. § 122.44(i)). Even if they did, regulations cannot supersede a statute. *See Free Speech Coalition, Inc. v. Attorney General of U.S.*, 677 F.3d 519, 539 (3d Cir. 2012) (citing *In re Complaint of Nautilus Motor Tanker Co.*, 85 F.3d 105, 111 (3d Cir. 1996) ("It is axiomatic that regulations cannot supersede a federal statute").

[16] (*See* Att. 9 at 46 (citing *In re Town of Concord*, 16 E.A.D. 514, 541–42 (EAB 2014) (upholding monitoring requirements for di(2-ethylhexyl) phthalate (DEHP) in effluent, not in receiving waters); *In re Avon Custom Mixing Services*, 10 E.A.D. 700, 709 (EAB 2002) (upholding monitoring requirements for pH, dissolved oxygen, total suspended solids, fecal coliform bacteria, and several other characteristics in effluent, not in receiving waters)); Att. 9 at 15 (citing *In re City of Moscow*, 10 E.A.D. 135, 170–71 (EAB 2001) (upholding a quality assurance project plan for monitoring performed of effluent, not of receiving waters); *In re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. 661, 671–72 (EAB 2001) (upholding monitoring requirements for the color of effluent, not the receiving waters)).)

above, assessing the health of Massachusetts Bay remains with the Commonwealth of Massachusetts. EPA may not shift the burden to the District.

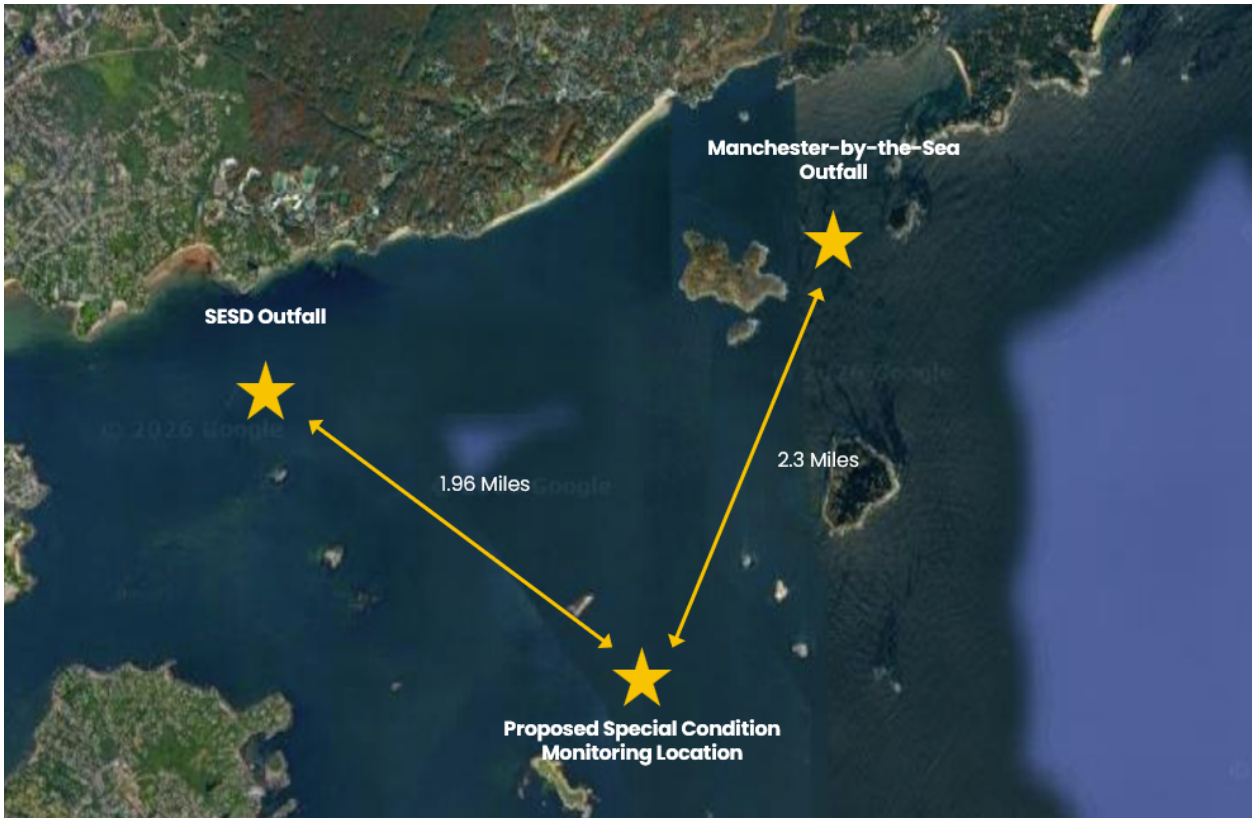
The requirement that the District "provide recommendations for . . . remedial actions to improve water quality" further proves EPA's lack of authority. (*See* Att. 1 at 24.) The Supreme Court has held that NPDES permittees cannot be held responsible for the water quality of receiving waters. *See City and County of San Francisco, Ca.*, 604 U.S. 334, 355 (2025) (striking down an "end-result" requirement—that is, one that "make[s] a permittee responsible for the quality of the water in the body of water into which the permittee discharges pollutants" imposed on a NPDES permit, holding that such requirements exceed the scope of EPA's authority under the Clean Water Act). Requiring the District to provide recommendations on how to improve the quality of Salem Sound is the responsibility of EPA and MassDEP. Not the District.

ii. *The special condition is unreasonable.*

In addition to the special condition exceeding the Region's statutory authority, it is also arbitrary and capricious. *See* 5 U.S.C. § 706(2); *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43 (prohibiting arbitrary and capricious agency decision-making); *see also* 33 U.S.C. § 1318(a)(A) (the Administrator may require information only "as reasonably required"). Board precedent provides that an agency's action is arbitrary and capricious if there is no "rational connection between the facts found and the choice made." *In re City of Sandpoint Wastewater Treatment Plant*, 17 E.A.D. at 789 (internal quotations omitted). Here, there are at least six reasons why there is no such rational connection between the decision to impose the permit condition (water quality assessment) and the facts underlying the permitted activity (the District's effluent discharge).

First, the District's outfall is nowhere near the sampling area. As shown in the following figure, the District's outfall[17] is about 2 miles from the proposed sampling location, roughly the same as Manchester-by-the-Sea's outfall (about 2.3 miles).

Figure 2:
Relative Locations of the Ambient Water Quality Monitoring Location, the District's Outfall, and Manchester-by-the-Sea's Outfall



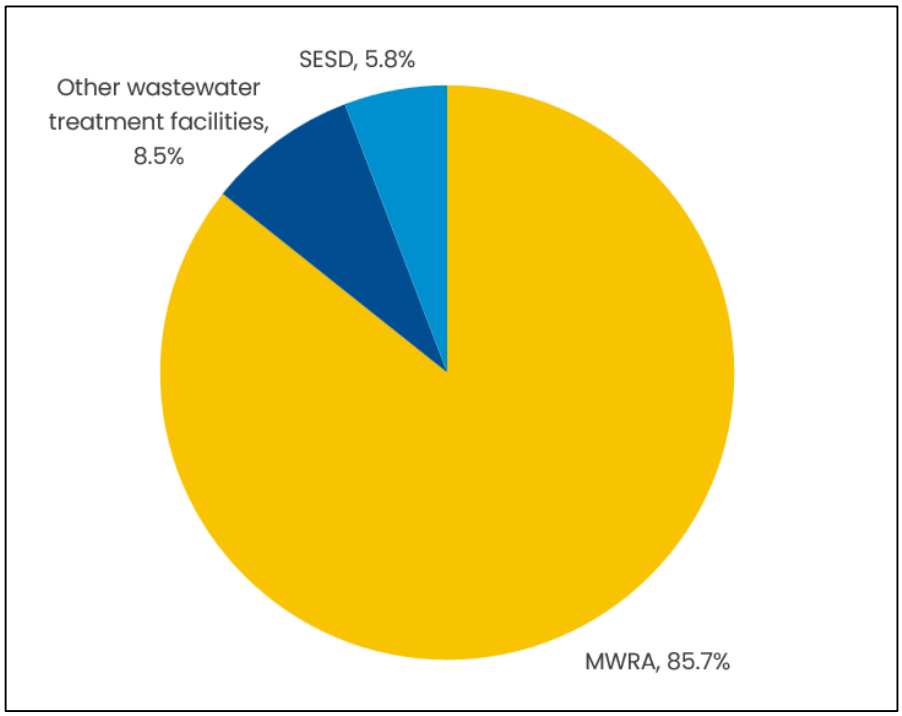
While there may be a rational connection between a wastewater facility's effluent and the receiving water quality *within* a wastewater facility's zone of influence (or just outside it for comparison purposes), there is no such connection with the receiving water quality *far outside* of that zone. Yet that is exactly what the Final Permit imposes by requiring ambient monitoring at a location that is, as the Region concedes, "outside the immediate influence of [the Facility's]

[17] The outfall is located at coordinates (42° 32' 14.9" N, 70° 50' 09.3" W).

discharge." (*See* Att. 7, Fact Sheet at 47.) The monitoring location is too far from the Facility's effluent outfall to be rationally connected to the imposition of a monitoring requirement at that location. The Region fails to justify why it falls on the District to test at this location, rather than MassDEP or other facilities or contributors of nutrient loads to Salem Sound. For example, Manchester-by-the-Sea's treatment facility discharges effluent at an outfall that is 2.3 miles from the sampling point.

Second, the District is not remotely the largest contributor of nutrients to Massachusetts Bay, the waterbody necessitating the study. The MWRA is, as shown in Figure 3 below:

Figure 3:
Proportionate Shares of Permitted Effluent Discharges into Massachusetts Bay by Facility



The District is permitted to discharge 29.7 MGD of wastewater to the Massachusetts Bay system, contributing only 5.8% of the total permitted wastewater discharges across all facilities. (*See* Att. 7, Fact Sheet at 45.) This value is dwarfed by the permitted 436 MGD wastewater

discharges from MWRA's Deer Island Facility, contributing 85.7% of the total permitted discharges. (*Id.*) The remaining 8.5% of the direct discharges from nine other facilities collectively also outweighs the Facility's smaller contribution. (*Id.*)

But even these numbers overstate the District's effect on Massachusetts Bay. The bay stretches over 40 miles and has a host of nutrient sources and other parameters besides direct discharges from facilities. These include stormwater runoff, septic systems, and discharges into rivers that flow to the bay. (*Id.*) In reality, the District's proportionate contribution is far less than 5.8%. And nutrients/water quality are just one factor affecting eelgrass. There are several other factors, such as light, temperature, boating activity, and physical disturbances.[18] The District plays no role in any of those factors.

It is inherently unreasonable to impose such a significant cost on a single entity when the underlying issue to be assessed is regional and multicausal. *See Michigan v. E.P.A.*, 576 U.S. 743, 751 (2015) (holding that an agency's failure to consider costs in a discretionary action is arbitrary and capricious). That is part of the reason why the CWA imposes such assessments on states. 33 U.S.C. §§ 1313, 1315; 40 C.F.R. § 130.4(b).

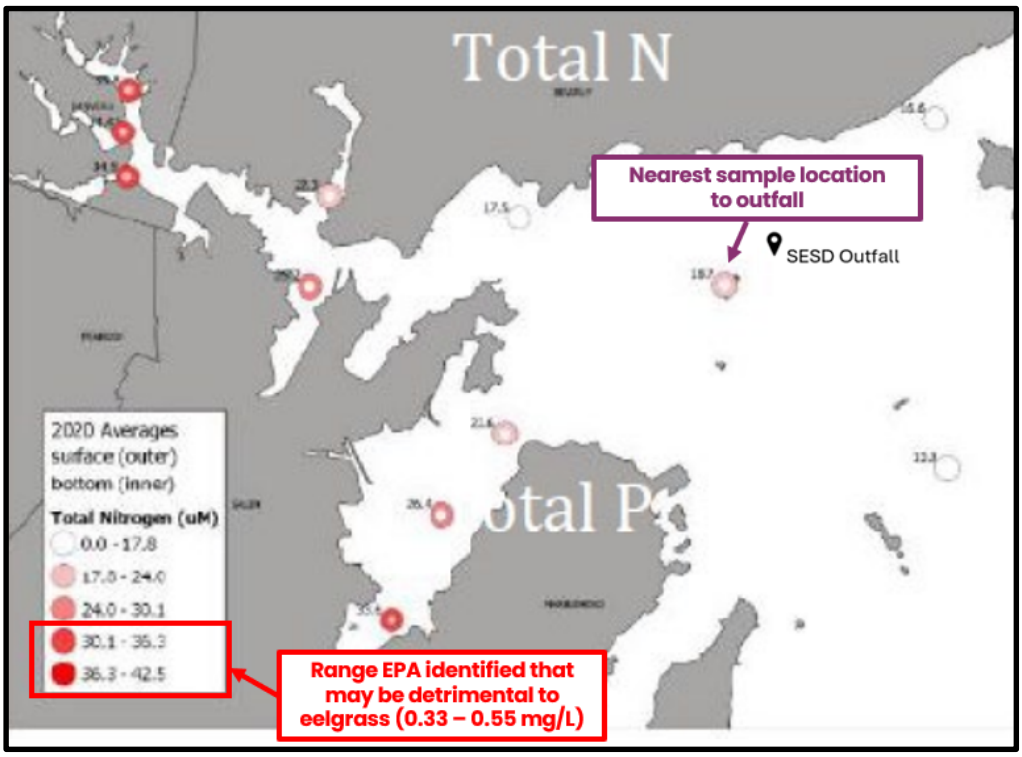
Third, permittees are not well suited to conduct such studies. Consistent with the CWA, a permittee is better positioned than EPA or a state to monitor its own discharge given its access to the outfall and knowledge of the system. That is in stark contrast to what EPA imposes here. The District has no ability to conduct a general environmental research program on behalf of EPA. (*See* Att. 8 at 23–24.) The District lacks the experience and equipment to carry out the program and would need to contract out much of the work. (*Id.* at 21.) EPA and the state both

[18] *See Historic Eelgrass Trends in Salem Sound, Massachusetts*, https://www.mass.gov/files/2017-08/2016_Salem%20Sound%20Eelgrass.pdf.

have experience with such studies as the one required by the Final Permit, as shown by the 2020 Vella and Callaghan study and the other studies EPA and the state intend to take to assess eelgrass. (*See* Att. 9 at 56.) The District has no such similar capabilities.

Fourth, there is a disconnect between EPA's stated goals, the sampling program, and the District. As the MWRA notes in its comment letter, the ambient sampling program "does not address the creation of monitoring questions to guide the design" of the program and instead imposes the MWRA's program under a "one-size-fits-all paradigm for monitoring programs . . . ." (*Id.* at 65–66.) Presumably, the goal of the program is to address eutrophication and the effects on eelgrass. But as the District and MWRA both note, the information EPA relies upon shows that the District is <u>not</u> a contributor to such issues. Figure 2 of Section 5.1.9.1 shows that the total nitrogen measurements near the District's outfall are actually among the *lowest* in the study area. (*See* Att. 7, Fact Sheet at 35; Att. 9 at 39, 65.)

Figure 4:
Total Nitrogen from Vella and Callaghan
(Figure 2 of Section 5.1.9.1. of the Fact Sheet)



The measurements closest to the District's outfall are below the levels that EPA believes might impact eelgrass. (*See* Att. 9 at 39, 65.) According to the Fact Sheet, "[t]he only stations with TN levels in this range [that might affect eelgrass] are much farther inland and not clearly impacted by the SESD discharge." (*See* Att. 7, Fact Sheet at 35.) This suggests that the impacts on eelgrass beds are caused by something other than the District's discharge. It is inherently unreasonable to impose these costs on a permittee that is neither causing nor contributing to the issue underlying the study. *See In re City of Sandpoint Wastewater Treatment Plant*, 17 E.A.D. at 789 (explaining that a rational connection between the facts and the permitting decision is required for an agency's discretionary action).

Based on this disconnect between EPA's goals and the District, it is also improper for EPA to require the District to "[s]ummarize findings and provide recommendations for

additional monitoring and/or remedial actions to improve water quality." (*See* Att. 1 at 24.) The District's outfall is not connected to the water quality at the sampling point, and thus the District should not be required to recommend actions to improve water quality at that same point.

Fifth, the overall cost burden of the program on the District is unreasonably high and lacks an end date. The District estimates that the program will cost between $150,000 and $200,000 per year. (*See* Att. 8 at 25.) These estimates may even be on the low end, considering that the MWRA pays about $1,000,000 per year on its own monitoring program (albeit at more locations). (*See* Att. 9 at 65.) Imposing such a cost in perpetuity, especially on a District with some of the state's poorest ratepayers and that is limited by Proposition 2 ½ in assessing costs to its member communities, is irrational. *See* M.G.L. c. 59, § 20B.

Sixth, the Region's imposition of ambient monitoring and assessments under these circumstances is an impermissible change in position. In the Region's response to Salem 2000's request for additional ambient monitoring requirements for the District to be added to its 2001 NPDES permit, the Region explained that "EPA's authority to require ambient monitoring is limited to circumstances where there are documented water quality impacts which are caused by a particular discharge." (Att. 4 at 6) (underlining added). Because "[w]ater quality data collected in the vicinity of the discharge . . . did not indicate any significant water quality impacts," EPA correctly said it lacked authority to impose the requested monitoring requirements. (*Id.*) The circumstances are nearly the same now. The Region would impose monitoring of many of the same parameters as Salem Sound 2000, albeit much farther than the prior proposed location. And like in 2001, there is no data showing that the District's discharge is particularly causing water quality impacts that underly the proposed study. (*See id.*; Att. 7, Fact Sheet at 35 (suggesting that the District's discharge is not responsible for the impacts on

eelgrass beds in Salem Sound)). Yet the Region reaches a different conclusion now (incorrectly) without explanation.

The Region's course change violates the "change in position" doctrine. To make such a change, the Region must "provide a reasoned explanation for the change, display awareness that they are changing position, and consider serious reliance interests." *Wages and White Lion Inv., L.L.C.*, 604 U.S. at 568 (citations and internal quotations omitted). Here, the Region fails on all counts. Nowhere in the Fact Sheet or the response to comments does the Region acknowledge its prior position from 2001 or explain the change. (*See* Att. 6, Fact Sheet; Att. 9.) Accordingly, the Region does not provide any explanation, let alone a reasoned one. Nor does it account for the District's reliance interests. When preparing budgets and performing long-term capital planning, the District relies on EPA to be consistent with its prior legal determinations, including commitments not to impose costly requirements that EPA has previously told the District are beyond its own authority to impose. (*See* Att. 8 at 25 (outlining the costs imposed by the ambient monitoring special condition)). This is a practical reality that the Region summarily fails to address. By failing to comply with the "change-in-position" doctrine, the Region acted arbitrarily. *See Wages and White Lion Inv., L.L.C.*, 604 U.S. at 568.

In its response to the District's comments, EPA argues that the special condition program is needed "to provide additional data to support a more robust and accurate reasonable potential analysis for future iterations of this individual NPDES permit." (Att. 9 at 44.) But the location and scope of the monitoring required render this rationale unlikely. As explained, the District's outfall is far from the sampling point in Massachusetts Bay, which is subject to wastewater flows that both dwarf the District's relatively small contribution and that originate from outfalls that are a similar distance to the sampling point. EPA also makes no effort to show commonality

between the two locations or a nexus—such as from tidal patterns, currents, etc. EPA's chosen location, not coincidentally, is at a location that the 2020 Vella and Callaghan study used to evaluate water quality in Massachusetts Bay. (*Id.*) That study was not analyzing the District's discharge, nor was it intended to be used "for future iterations of [the District's] NPDES permit." (*See id.*) EPA may wish to continue this study to have a better understanding of water quality at this location given the study's findings. The same is true for all water quality assessments required of the state. But that does not make it the burden of the District's ratepayers to bear.

B. The bacteria limits should be amended to remove the winter limit.

Requiring the same effluent bacteria limits year-round for the District was also arbitrary and capricious and clear error. *See* 5 U.S.C. § 706(2); *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43 (prohibiting arbitrary and capricious agency decision-making). The primary purpose for these limits is to protect public health, particularly for recreational users of receiving waters and their shorelines. (*See* Att. 8 at 5–6.) The District, in its comments, rightly explained that limits for fecal coliform and enterococci during the months of November through March would have no benefit on public health because recreational use during those months drops precipitously. (*Id.* at 6.) Removing the limit in the winter months when there is little recreational use would also mean the District would need to use less chlorine, in line with the Region's goal for the District that it should "minimize the use of chlorine while maintaining adequate bacteria control." (*Id.*; Att. 1 at 7.) Yet, in its response to these comments, the Region summarily dismissed the prospect of a seasonal limit, stating only "EPA consulted with MassDEP on this issue and MassDEP determined that a seasonal limit for enterococci would be backsliding from the 2016 Permit." (*See* Att. 9 at 12.) This single-sentence conclusory response is not reasoned decision-making. *See In re Town of Newmarket*, 16 E.A.D. at 187 (EPA's permitting decisions must be

"cogently explained" to be upheld by the Board). It is not even clear that EPA agrees, since the response only cites "MassDEP's determination." (*See* Att. 9 at 12.)

In any event, the notion that a higher seasonal limit would be backsliding does not hold up under scrutiny. 40 C.F.R. § 122.44(l)(2)(i)(B)(1) provides that effluent limitations in reissued permits may be less stringent than in previous permits when "[i]nformation is available which was not available at the time of permit issuance . . . and which would have justified the application of a less stringent effluent limitation at the time of permit issuance." Here, during the permitting process for the 2016 permit, the Region lacked the benefit of information the District provided during the permitting process for the 2025 permit, which would warrant a less stringent effluent limit under 40 C.F.R. § 122.44(l). A study was performed in 2020 that demonstrated that the Facility's "diffuser system is functioning effectively to disperse effluent and facilitate bacterial decay." (*See* Att. 8 at 4.) The Region understands the significance of this study, acknowledging in the Fact Sheet that the Facility's "outfall seems to be doing a good job at dispersing effluent." (*See* Att. 7, Fact Sheet at 35.) Before this study, when the District received its prior permits, information wasn't available about the effectiveness of the Facility's diffuser system. Back then, refusing to implement a seasonal limit may have been more justifiable because of this lack of information. This new information warrants an exception to the general anti-backsliding principles of 40 C.F.R. § 122.44(l), because now the Region has a better understanding of how well the diffuser system is working.

This is not a matter of backsliding. It is a matter of technical error in the prior permit, warranting change by EPA now to correct its prior mistakes. *See* 40 C.F.R. § 122.44(l)(2)(i)(B)(2) (providing that effluent limitations may be made less strict than as imposed by previous permits where "technical mistakes . . . were made in issuing the permit"). The

Region failed to analyze whether the limit that it imposed was needed all year round, rather than just during the higher-recreation months outside of the winter season. Without justification, the Region required the District to discharge higher chlorine residual loading to the receiving water in the winter, even though not necessary to prevent harms to public health or safety. All at the ratepayers' expense. (*See* Att. 8 at 6–7.)

Even still, the Region's decision to maintain a limit must be rational. It is not, given the lack of recreational use and the fact that other permittees lack winter bacteria limits. (*See id.* at 6.) For example, the much larger Deer Island Facility has seasonal enterococci limits based on lower "recreational exposure risk" during the winter months. (*Id.*) Failing to distinguish Deer Island from the District, the Region also fails to rationally explain why the same reduced recreational exposure risk during with winter months should still require year-round lower limits for bacteria in the District's NPDES permit. *See Kirk v. Comm'r of S.S.A.*, 987 F.3d 314, 321 (4th Cir. 2021) (explaining that "a federal agency 'can be said to be at its most arbitrary' when it 'treat[s] similar situations dissimilarly'") (quoting *Steger v. Def. Investigative Serv. Dep't of Def.*, 717 F.2d 1402, 1406 (D.C. Cir. 1983)).

The Region also failed to acknowledge in its response that the District also sought a seasonal limit (i.e., removing the winter limit) for fecal coliform, and thus failed to provide any reasoned justification for why it would not be imposed. In fact, it provided no response whatsoever. *See Mistick PBT v. Chao*, 440 F.3d 503, 512 (D.C. Cir. 2006) ("Unless an agency answers objections that on their face appear legitimate, its decision can hardly be said to be reasoned" and thus such decision is arbitrary and capricious (quoting *Tesoro Alaska Petro. Co. v. FERC*, 234 F.3d 1286, 1294 (D.C. Cir. 2000)).

C. The bacteria limits should allow for a mixing zone.

The bacteria limits are also arbitrary and capricious because no mixing zone was recognized in the calculations underlying them. *See* 5 U.S.C. § 706(2); *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43 (prohibiting arbitrary and capricious agency decision-making). Mixing zones are valid under Massachusetts water quality regulations, and a commonsense way to account for the reality that treated effluent's bacteria concentration may not have as detrimental an effect if the discharging outfall has the technical capacity to mix the discharge sufficiently with the receiving water. 314 C.M.R. § 4.03(2). Such is the case for the MWRA's permit, which incorporates a mixing zone into its bacteria limits such that they are far higher than they would be without the benefit of the mixing zone. (*See* Att. 8 at 4–5.) The decision not to include a mixing zone in the District's Final Permit lacks justification where the Region failed to adequately explain the distinction between the Facility and the MWRA's facility. *See Kirk*, 987 F.3d at 321 (explaining that it is arbitrary for an agency to treat similar situations differently). The two facilities are functionally equivalent. (*See* Att. 8 at 5.) Although the Region's response to comments highlights some of the unique characteristics of the Deer Island outfall, it does not adequately explain why the differences between it and the Facility's outfall justify the different treatment. (*See* Att. 9 at 10.)

More inconsistent still is why the Region would allow mixing zones for the District in some respects, but not as to bacteria limits. As the Fact Sheet explains in a section on available dilution for the Facility, "[c]ertain water quality-based effluent limits in the 2016 Permit were established with the use of a mixing zone." (Att. 7, Fact Sheet at 25.) These effluent limits from the 2016 permit based on a mixing zone, including total residual chlorine, were carried over into the limits set in the Final Permit. (*See id.*) The Region should use the same dilution factor for all limits. The Region fails to account for why a mixing zone is appropriate for total residual

chlorine, but not for bacteria. *See Kirk,* 987 F.3d at 321 (explaining that it is arbitrary and capricious for an agency to make different decisions for similar circumstances).

The Region attempts to justify the lack of a mixing zone on concerns for "people recreating in or through a bacteria mixing zone" or from eating affected shellfish. (Att. 9 at 11.) These concerns are unfounded. There is no contact recreation in the proposed mixing zone area—more than a mile from the nearest shore. Further, this is an open-ocean outfall located in an area that is "relatively well mixed due to tides." (Fact Sheet at 26). There is no evidence that setting a dilution factor based on a mixing zone would affect any of the beaches a mile away. In fact, bacteria monitoring data by the MWRA shows there would be no such effect. The MWRA assesses bacteria levels at several points in Massachusetts Bay.[19] Some are "nearfield", meaning within 6 to 7.5 miles from the Deer Island Facility's outfall diffusers. Most of these are within 1.25 miles of the outfall to monitor initial dilution. In a 2011 report issued by MWRA analyzing bacteria collected from 1999 to 2011, the MWRA concluded:

> [T]he data show that the receiving water near the outfall and other areas consistently meets Massachusetts' most stringent water quality standards for Class SA shellfishing and swimming. The geometric mean count for bacteria at the outfall site is 0.2 organisms/100 ml for both fecal coliform and Enterococcus. Of samples collected at the two stations closest to the outfall, the vast majority of samples, 90%, were non-detects for fecal coliform and 91% were non-detects for Enterococcus. Of 1,828 samples collected at all sites after the outfall went on-line, only two samples exceeded the single-sample maximum value (for designated bathing beaches) for Enterococcus.[20]

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[19] *See MWRA Environmental Data,* https://www.mwra.com/harbor/download-environmental-data.

[20] *Ambient Water Quality Monitoring of the Massachusetts Water Resources Authority Effluent Outfall: Indicator Bacteria in Massachusetts Bay 1999*-2011, https://www.mwra.com/media/file/ambient-water-quality-monitoring-massachusetts-water-resources-authority-effluent.

MWRA's data after 2011 show similar results.[21] The primary factors for these low bacteria levels are the same for the District's outfall. Dilution is the primary factor, and both MWRA and the District use similar diffusion technologies. There is also similar natural die-off of the bacteria near both outfalls from the high salinity of Massachusetts Bay, and tidal and wind transport. The major difference is that MWRA is permitted to discharge about 15 times more effluent than the district (436 MGD for MWRA; 29.7 MGD for the District). The District's lower flow suggests even lower bacteria levels near its outfall than what MWRA's data showed.

Further, there is no observable toxicity from the impact of the District's discharge to marine life, including shellfish. The District's whole effluent toxicity ("WET") testing analyzes potential impacts on Mysid shrimp, among the shellfish beds located within about 600-700 feet of the outfall. The results have shown a perfect 100 percent survival for every WET test of these shrimp during the permit review period (Sept. 2019 through Aug. 2024). (*See* Att. 7, Fact Sheet at 27 (defining the review period); Appendix A (monitoring data summary)).[22] There is also no potential public health impact by consuming these shellfish. By the Region's own admission, all locations within the outfall's zone of influence are prohibited for shellfishing. (*Id.*) EPA's "shellfishing" designation is not applicable in areas classified by Massachusetts as prohibited for shellfishing. (Att. 8 at 5.) It is hard to rationalize how the imposition of a mixing zone would endanger public health to members of the public engaging in shellfishing if the areas that would

[21] *Supra* n. 19.

[22] Under 40 C.F.R. § 124.19(a)(2), a petitioner for review by the Board may raise an issue that EPA addressed in its response to comments document, if the petitioner provides a citation to the comment and response and explains why the response was clearly erroneous or warrants review. Thus, the Board may consider the issue of shellfish in the zone of the District's impact because the Region raised shellfish in its response to comments justifying the decision not to apply a mixing zone. *See* 40 C.F.R. § 124.19(a)(2).

be affected by the mixing zone can't be used for shellfishing and isn't even designated for shellfishing by EPA itself.[23]

D. The PFAS and organofluorine monitoring requirements should be removed.

The requirement to use Method 1621 and Method 1633 in monitoring for PFAS and organofluorine is improper because these methods have not been adequately promulgated into federal regulations. Under the Administrative Procedure Act, all rules must be promulgated, meaning that they are noticed in draft form in the Federal Register, undergo a public comment process, and are then published as a final rule after addressing the comments received. *See* 5 U.S.C. § 553 (providing the framework for agencies to properly adopt rules). A "rule" means "the whole or a part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy . . . or practices bearing on any of the foregoing." 5 U.S.C. § 551(4). EPA has long acknowledged that sampling methods like Method 1621 and Method 1633 are rules and subject to this process. *See, e.g.*, 40 C.F.R. 136.1(a) (providing that promulgated methods "shall . . . be used to perform the measurements indicated whenever the waste constituent is required to be measured for . . . [r]eports required to be submitted by dischargers under the NPDES."). Both methods have begun the rulemaking process but have not been finally promulgated. (Att. 9 at 18 (providing that "EPA confirms that . . . Methods 1633 and 1621 have not yet been promulgated . . . .)) *See also* 33 U.S.C.

[23] Notably, although the Board addressed mixing zones in *In re City of Lowell*, there are important factual differences between that case and the District's. *See In re City of Lowell*, 18 E.A.D. 115, 164, 167 (EAB 2020). The Board there acknowledged that mixing zones are allowed under Massachusetts' water quality regulations, but declined to impose one there because the petitioner did not adequately respond to the Region's explanation that a mixing zone in the Merrimack River (to which the petitioner's facility discharged) would interfere with the existing recreational uses of the river. *Id.* Here, a mixing zone in the Atlantic Ocean would not interfere with recreational uses or public health. The ocean also has far more diluting capacity than a river.

§ 1318(a)(A)(iv) (EPA may require sampling of "such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe.")[24] (underlining added).

The Region concedes that Method 1621 and Method 1633 are not finalized promulgated methods, and in fact there is no finalized method included in federal regulations for testing PFAS or organofluorine. (Att. 9 at 18). EPA cites to its regulations (40 C.F.R. § 122.44(i)(v)(B)) to claim that in the absence of an approved process that underwent a rulemaking, EPA may set any test procedure it wants in the permit. (*Id.*) This is an impermissible end-run around the Administrative Procedure Act and the CWA. Both statutes require promulgation after notice and comment. EPA may not rely on regulation to avoid the clear statutory requirements. EPA's approach also makes little sense. There would be no point in undergoing a rulemaking process if EPA can simply ignore it and impose whatever method it wants in a permit.

The District should not be beholden to a methodology that the Region adopts outside of the statutorily mandated rulemaking process. As a practical matter, the method may still be adjusted or changed on a whim (unlike methods promulgated after notice-and-comment), leaving the District struggling to keep up with an unfixed method. The Region should follow statutory procedure to impose Method 1621 and Method 1633 before requiring them of its permittees.

[24] *See Couser v. Shelby County*, Iowa, 139 F.4th 664, 671 (8th Cir. 2025) (quoting *Prescribe*, Black's Law Dictionary (12th ed. 2024) ("Congress uses 'prescribe' to connote rules, regulations, standards, and similar directives that are particularized"); *see also* 33 U.S.C. § 1361(a) (providing EPA with the authority "to prescribe such regulations as are necessary to carry out its functions" (underlining added)).

E. The sampling and testing frequency for nitrogen should be kept at the current permit's monthly frequency year-round.

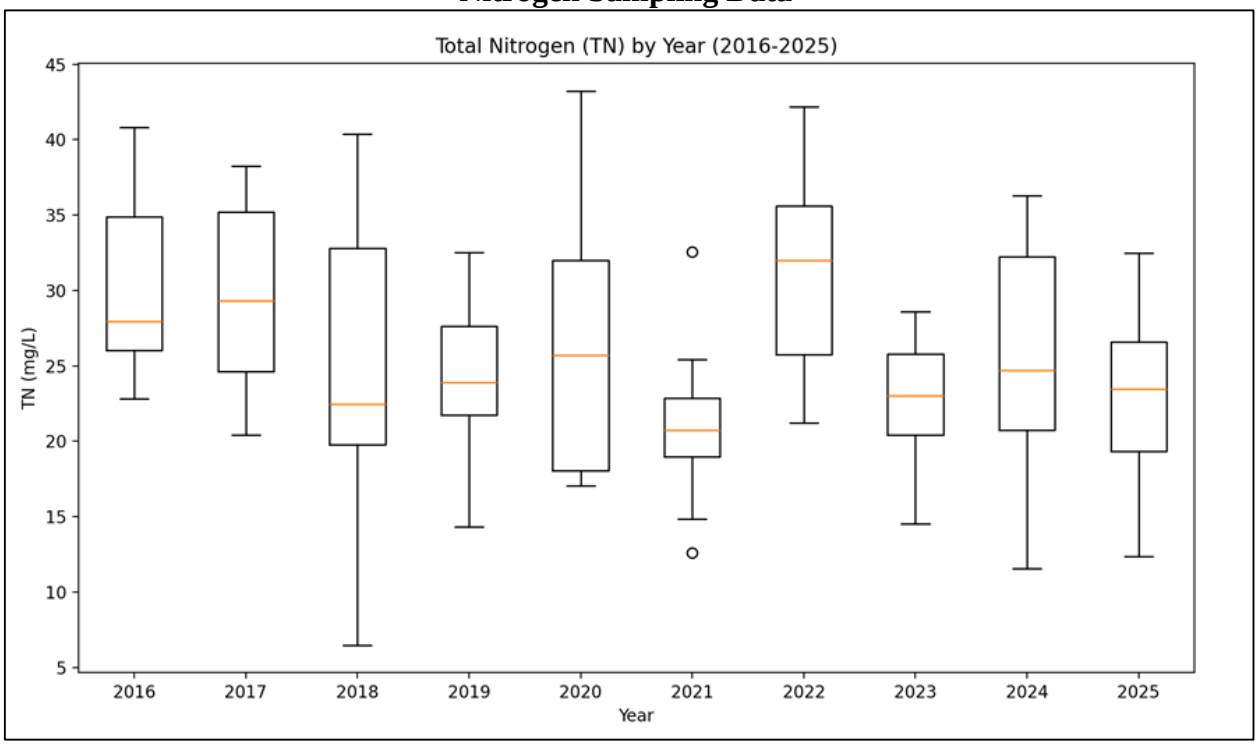
As a final argument, the Region clearly erred in requiring weekly sampling and testing for total nitrogen (TKN and nitrate/nitrite) during the growing season (Apr. – Oct.). While it is within the Region's authority to require effluent monitoring, those requirements must be rational. Here, they are not, because weekly testing will provide no additional information that monthly testing does not already provide. The Region alleges that "more data are needed" to understand the influence of the District's effluent on Salem Sound's current signs of nutrient-induced effects. (Att. 9 at 16.) This premise is faulty given that the total nitrogen concentration at the Facility's outfall was shown to be only 0.22 mg/L in a 2020 study relied on in the Fact Sheet. (Att. 7, Fact Sheet at 35.) The Region admits that "these levels are below the range of 0.33 to 0.55 mg/L which . . . may be detrimental to eelgrass" (the underlying concern EPA raised in increasing the monitoring frequency). (*Id.*) The only locations with nitrogen levels in this harmful range were, in the Region's own words, "not clearly impacted by the [District's] discharge." (*Id.*) It is unclear then, why more frequent data on nitrogen in the District's discharge is needed to understand its relationship to the nutrient-induced effects. Existing data already shows that it is unrelated. (*See id.*)

But even if "more data are needed," the Region fails to explain why *more* data means *more frequent* data. (*See* Att. 9 at 16.) In response to the EPA's comments, the District conducted a statistical analysis of the District's total nitrogen data from 2016 to 2025.[25] (*See* Att. 10, Statistical Analysis of the District's Nitrogen Data, 2016–2025). The data is grouped by year

[25] The Board may consider the District's statistical analysis as it addresses the justification in the Region's response to comments document that more frequent nitrogen data collection was needed. *See* 40 C.F.R. § 124.19(a)(2) (allowing a petitioner for review by the Board to raise an issue that the EPA addressed in its response to comment).

and tests the significance of any variation between years at the 95% confidence level. Figure 5 below illustrates the yearly data of the last decade:

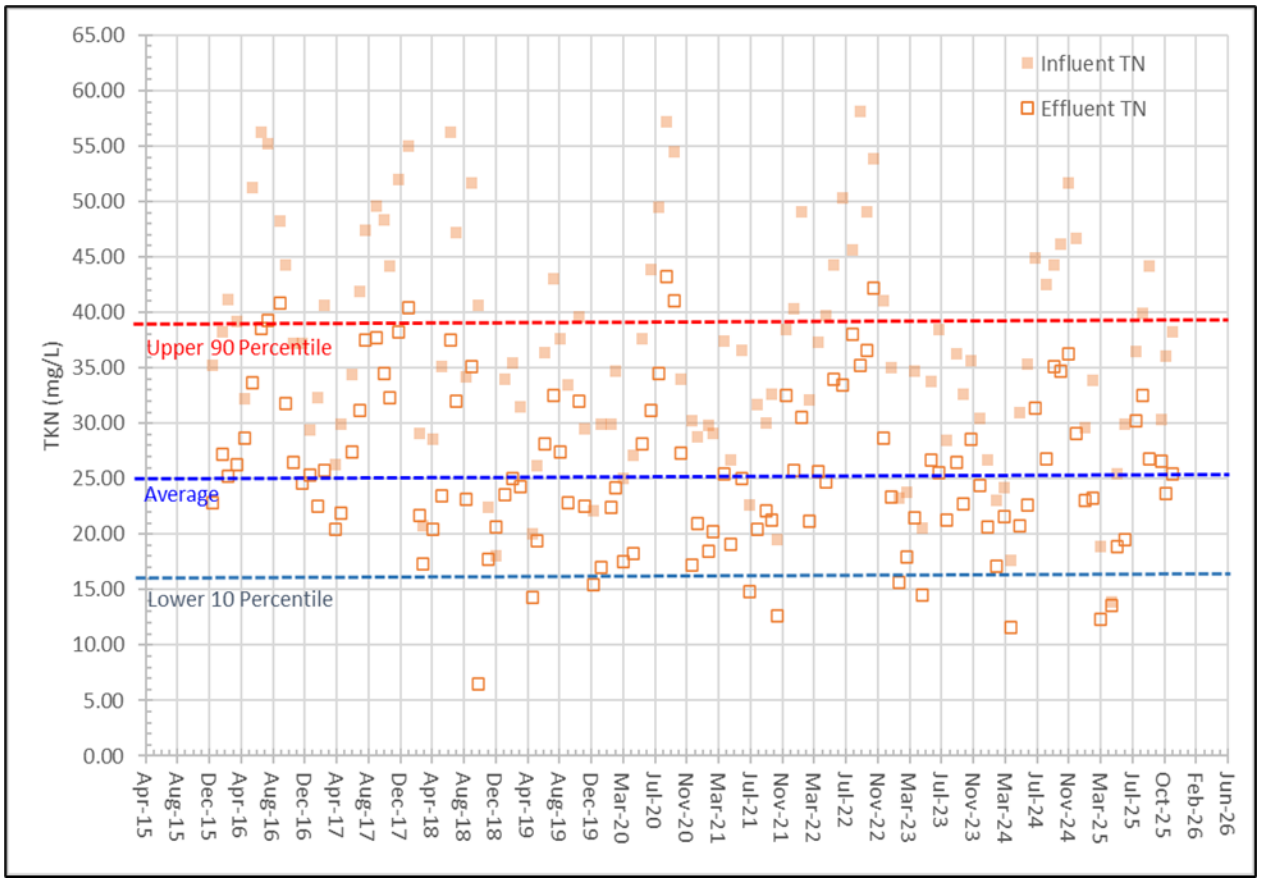
Figure 5:
Nitrogen Sampling Data



This data shows no significant changes year-to-year at a 95% confidence level.[26] This includes the data during the growing season. Figure 6 below shows effluent total nitrogen concentrations over the same years with the mean, upper, and lower percentiles shown.

[26] According to a statistical analysis of the variances across years, the only two yearly pairs that show significant differences are 2016 vs. 2021 and 2021 vs. 2022.

Figure 6:
Nitrogen Concentration of Effluent



The data is scattered over the time period and there is no significant trend visually. There is also no regression observed (with R value < 0.05 for linear or nonlinear regression).

If nitrogen levels are not changing significantly over time, including during the growing season, then there is no reason why sampling every week for seven months (rather than every month) would show significant changes, either. Continuing to monitor effluent nitrogen levels at the same monthly frequency thus adequately represents the District's discharges.

Because monthly sampling already shows predictability over this period, more frequent sampling will not aid the Region in making future permitting decisions. Instead, this only serves to impose yet another cost burden on the District.

VII. CONCLUSION

For these reasons, the South Essex Sewerage District respectfully seeks Board review of the terms and conditions of the District's current NPDES permit. After such review, the District requests a remand of the permit to Region 1 with an order to issue an amended NPDES permit that removes the special condition water quality assessment, removes the winter bacteria limits, applies a mixing zone to the effluent bacterial limits, removes the PFAS and organofluorine monitoring requirements, and reverts the nitrogen testing frequency of the effluent to monthly year-round.

Respectfully submitted,

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Dated: January 21, 2026

REQUEST FOR ORAL ARGUMENT

Petitioner, the South Essex Sewerage District, respectfully requests oral argument before the Environmental Appeals Board on its petition for review of NPDES Permit No. MA0100501 because it believes oral argument will be of assistance to the Board.

STATEMENT OF COMPLIANCE WITH THE WORD/PAGE LIMITATION

In accordance with 40 C.F.R. § 124.19(d)(1)(iv) & (d)(3), I hereby certify that this Petition does not exceed 14,000 words. Not including the transmittal letter, caption, table of contents, table of authorities, figures, signature block, table of attachments, statement of compliance with the word limitation, and certification of service, this Petition contains less than 14,000 words.

Matthew J. Connolly

TABLE OF ATTACHMENTS

CERTIFICATE OF SERVICE

I hereby certify that on January 21, 2026 a copy of the foregoing Petition for Review was served on Respondent identified below by U.S. first-class mail and email:

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Matthew J. Connolly

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